ARRENOCLAVUS, A NEW GENUS OF POLYEMBRYONIC ENCYRTIDAE

(Hymenoptera)

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Blanchard (1940) published a key to some Argentine encyrtids including one new species of *Copidosoma* designated as *koehleri.* Although no formal description accompanied the key, the specific name is valid and has been used by various authors in discussing the biology, distribution, and economic importance of this insect. On the basis of a careful morphological analysis of all stages of *koehleri* it is believed that the characters exhibited by this species preclude its proper inclusion within the defined limits of any currently valid genus, and therefore it seems advisable to designate a new genus.

Arrenoclavus Doutt, new genus

Female. Length 1.1 mm. to 1.6 mm., average 1.29 mm. Head only slightly longer than broad in a ratio of 27:25. Eyes oval, nonhispid, cheeks long. Mandibles tridentate at apex with a fourth small tooth on inner surface, two prominent setæ present on distal half. Maxillary palpi 4 segmented, labial 3. Antennæ inserted near border of mouth. Scape elongate, cylindrical, reticulate; pedicel longer than broad, longer than following segment; funicle filiform, funicle segment 1 the smallest antennal segment, funicle segments 2 - 6 subequal in length; club three segmented, wider than funicle, truncate at apex (Fig. 1). Antennæ black.

Scutum rather coarsely punctuate, sparsely clothed with regularly arranged fine setæ. Scutum large, entire, convex. Axillæ contiguous at apex. Scutellum rounded at apex, distinctly shield shaped, sparsely covered with fine setæ. Thorax black with iridescent purplish sheen except scutum, which is black with a greenish luster.

Abdomen subtriangular, shiny black. Ovipositor exserted for length equal to basitarsus of posterior leg.

Anterior legs black, but tibial spurs, tarsi, and bases of tibiæ fuscous. Middle legs black, except tips of femora, bases of tibiæ, saltatorial tibial spurs, and first 3 tarsal segments which are pallid.

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Posterior legs black, except for pallid bases of tibiæ and brown tarsi.

Anterior wings large, broad, hyaline; submarginal vein of normal length; marginal vein very short; postmarginal vein bearing a large, prominent seta; postmarginal vein longer than marginal. Stigmal vein longer than marginal and post-marginal combined, slightly enlarged at apex; cluster of 4 round white spots near apex (Fig. 2).

Male. Average length 1.62 mm., range 1.02 mm. to 1.88 mm. (from 652 individuals). In color and habitus similar to female. Antennal scape elongate, narrower at apex than at base; pedicel smaller than any funicle segment; funicle more setaceous than that of female, funicle joints subequal in size, somewhat wider than

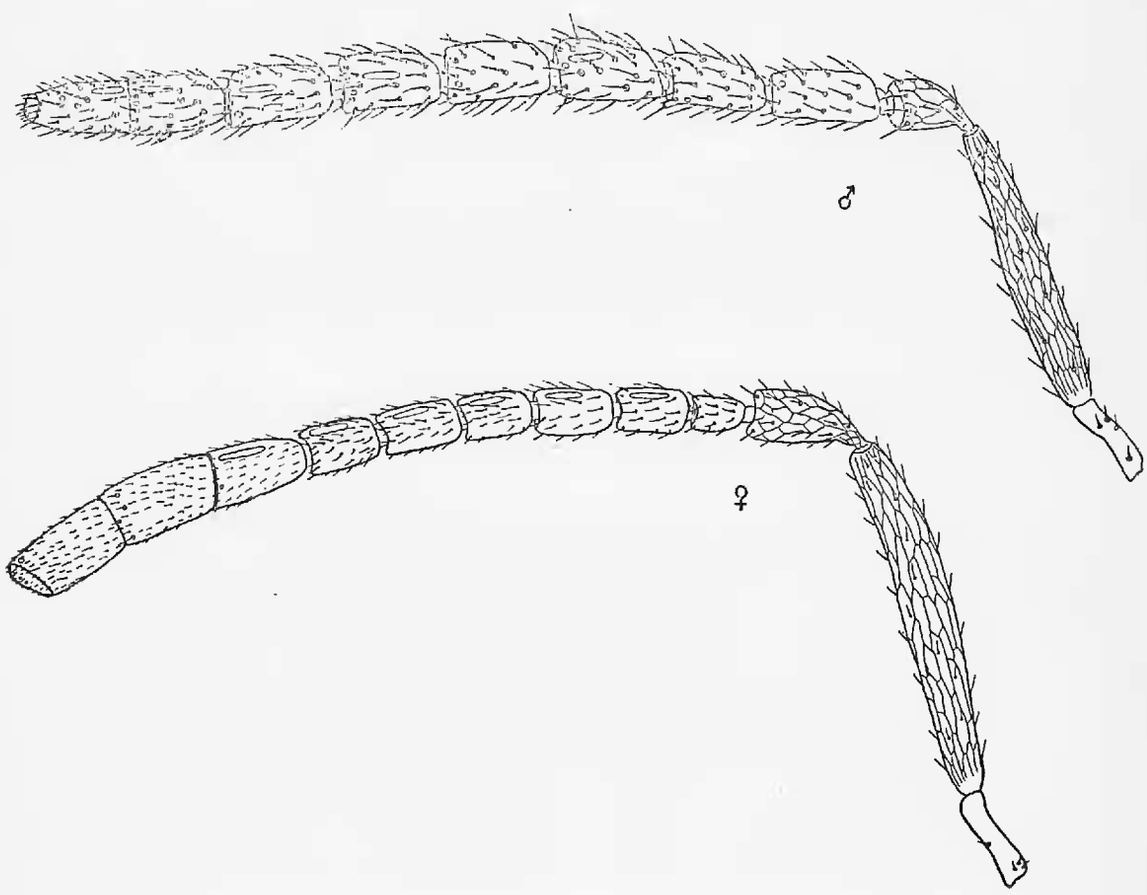

Fig. 1. Antennæ of *Arrenoclavus koehleri* (Blanchard).

pedicel; club lanceolate, no wider than funicle segments, divided by transverse septum (Fig. 1).

Egg. Unbanded, no modification of chorion for respiration, dumbbell-shaped, consisting of micropylar bulb, stalk, and enlarged basal portion.

Polygerm. Staphyloform or embryos in spherical cluster, not in embryonic chain as *Copidosoma;* associated with host's fat body and tracheæ.

Asexual larvae. Normally only one produced per polygerm. Somewhat nematode-like in appearance.

Sexual larvae. Hymenopteriform, 13 segmented, 9 pairs of spir-

acles. The two lateral ileac glands (Flanders 1938) attach anteriorly to the labial glands, and are contiguous with the labial glands over posterior portion. Lateral ileac glands of *Copidosoma* are not contiguous over the posterior portion. (Parker 1924).

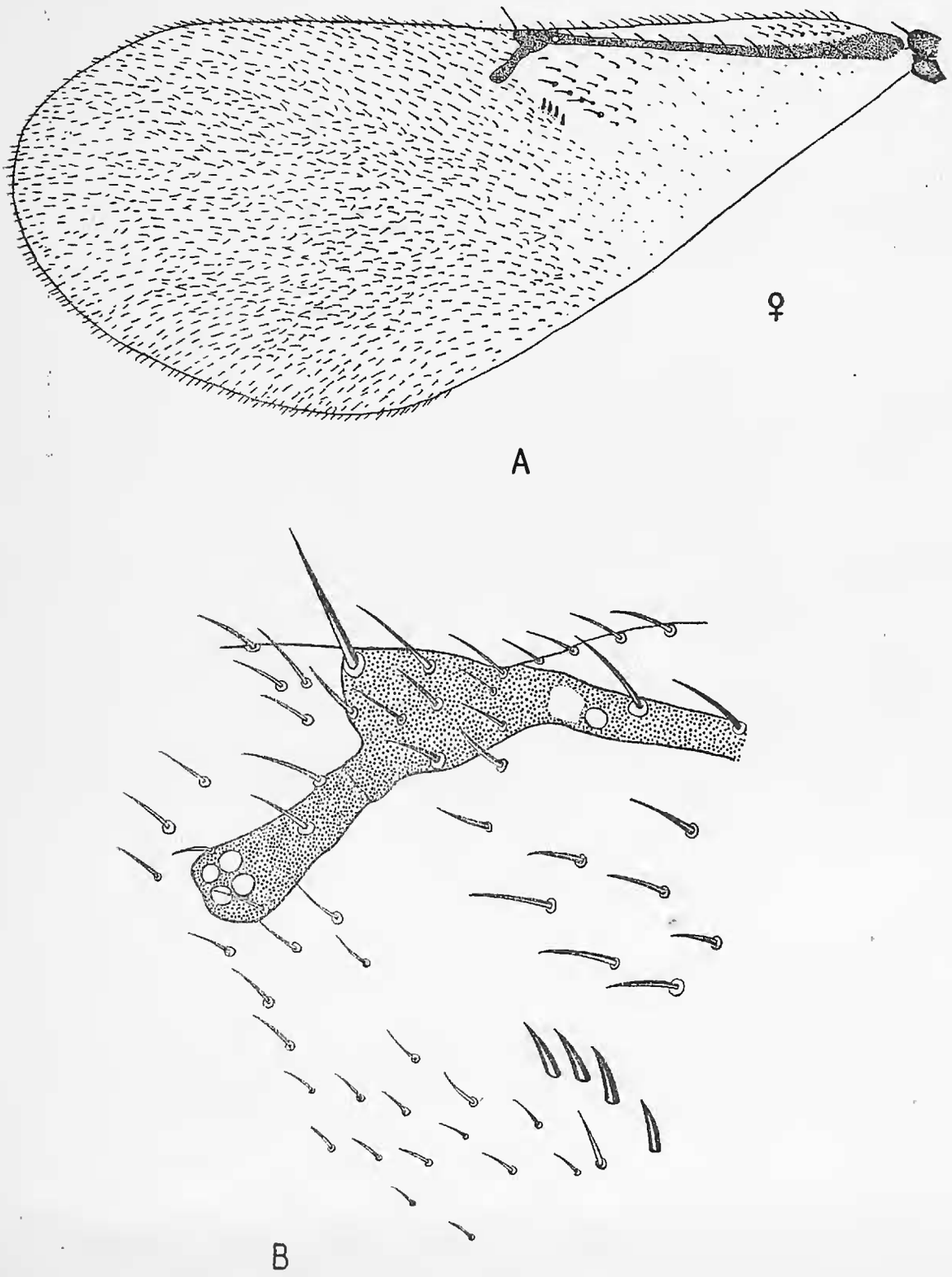

Figure 2.

A. Anterior wing of *Arrenoclavus koehleri* (Blanchard). B. Details of stigmal section.

The truncate antennal club and broad, subtriangular abdomen separate the female *Arrenoclavus* from the typical *Copidosoma* female (*C. boucheanum Ratz.*) which possesses a lanceolate club and an abdomen so strongly compressed that the dorso-ventral aspect is almost lost in the prominent lateral surfaces.

The presence of a transverse septum in the club of the male antenna separates *Arrenoclavus* from the males of allied genera (*Copidosoma, Litomastix, Paralitomastix*) which have solid clubs. The two-segmented nature of the male club is easily seen when specimens are treated with 95% alcohol, immersed in clove oil, and then mounted in balsam with the lateral antennal surfaces toward the observer. This character is not readily evident in tag mounted individuals nor in those slide mounted specimens which present other than the lateral antennal surfaces to the observer. Since the lateral surface is usually visible without manipulating the specimen in the balsam, the club's septum is ordinarily seen in the majority of slide mounted specimens. For instance 127 male *koehleri* were placed at random in balsam without any effort being made to adjust their appendages, and of this large series 102 individuals unmistakably disclosed the characteristic club of *Arrenoclavus* while it was difficult to see this character in only 25 specimens. The generic name is derived from the unique character of the male antennal club.

Arrenoclavus may be further distinguished from other genera by characters present in the wing venation and in the developmental stages.

Genotype. *Copidosoma koehleri* Blanchard

A series of specimens upon which this description is based is deposited in the collection of the Division of Biological Control of the University of California. A similar series is to be deposited in the collection of the California Academy of Sciences.

Literature Cited

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